CIRCULATION ELEMENT

CITY OF ORANGE

Orange -- Streets
City planning -- CA
Orange -- City planning
Urban transp. -- Orange

RESOLUTION NO. 4780

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ORANGE ADOPTING THE CIRCULATION ELEMENT AS PART OF THE GENERAL PLAN OF THE CITY OF ORANGE.

WHEREAS, Section 65302(b) of the California Government Code requires the approval of a Circulation Element as part of the Comprehensive General Plan for any California City; and

WHEREAS, the City Council has received a recommendation from the Planning Commission concerning the Circulation Element and has held a public hearing to consider the adoption of the Circulation Element as a part of the General Plan; and

WHEREAS, said element is required to describe the general location and extent of existing and proposed thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan, and

WHEREAS, the Element was prepared with the assistance of and review by other departments; planning agencies; officials; public utilities; civic, educational, professional and other organizations; and citizens, to ensure maximum coordination; and

WHEREAS, the Circulation Element was prepared in compliance with State law and fulfills the requirements of Section 65302(b) of the State Government Code, and can be used as a guide for future plans and programs in the City of Orange; and

WHEREAS, implementation of the Circulation Element of the General Plan of the City of Orange will serve to achieve many of the stated goals of the community and promote the general welfare, health and safety, of its citizens; and

WHEREAS, the City Council has determined that the Planning Commission has presented a Circulation Element which complies with the aforementioned guidelines.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Orange does hereby adopt the Circulation Element as part of the Comprehensive General Plan of the City of Orange and hereby instructs the staff to execute and implement the measures outlined in the aforementioned Circulation Element subject to the following revisions:

1. On page 4 of the text it was agreed by the Council that the policy at the bottom of the page which reads "Continue to support and implement the City's street tree planting

program" should be deleted. It was agreed by the Council that the Circulation Element was not the appropriate place for a policy statement such as this.

2. On page 5, paragraph 1, under the heading Circulation in Orange the last sentence which reads "The automobile has become the predominant means of personal and commercial transportation in the City", was discussed. It was agreed by the Council that the word "motor vehicle" is a more accurate term than the word "automobile" and, therefore, the term "motor vehicle" is hereby inserted instead of and in place of "automobile".

3. On page 5, paragraph 2, under the heading Circulation in Orange insert the following after the first sentence: "A well planned circulation system provides a balanced system which assures the delivery of people, goods, and services efficiently. Economic stability in the community is greatly dependent upon a circulation system which serves the commercial centers, which allows the delivery of services at a high level, and which moves people and goods to places of employment."

4. On page 12 add a third paragraph under the heading Implementation to read as follows: "Certain specific transportation and circulation related activities now underway in the City include the following:

   "Core Area Study - Bounded by Katella on the north, Newport Freeway on the east, Garden Grove Freeway on the south and Orange Freeway on the west.

   A core area traffic study and analysis is underway in the westerly portion of Orange. The primary purpose of this effort is to analyze the existing older street system and develop a plan and program to prevent or alleviate future potential traffic problems here in West Orange.

   Truck Route Study - This study is city-wide. Its primary purpose is to analyze existing truck routes in the city and then develop a revised truck routing system which will put the trucks only on those streets which can best accommodate them.

   West Chapman Avenue and F.A.U. Project - Chapman Avenue between Lemon Street on the east and the Orange Freeway on the west. An effort is underway by interested citizens to improve the visual quality of West Chapman Avenue.

   A Federal Aid Urban Grant application to improve existing traffic conditions and provide two-way continuous left turn pockets on Chapman Avenue between Main Street and Lemon Street has been filed. This program is an 80%/20% Federal/City sharing program with a proposed city share of $100,000 in the 1977-78 budget for this purpose. Included in this proposal are widening Chapman Avenue to four lanes, bus bays and shelters, landscaping, street lighting, undergrounding of utilities and railroad crossing improvements.

A street improvement project for Chapman Avenue from Flower Street westerly to the Orange Freeway will be carried out in the near future. The project will add one travel lane to this portion of the street and will greatly reduce traffic problems resulting from opening of the Orange Freeway."

BE IT FURTHER RESOLVED that the City Council hereby concurs with the Planning Commission certification of E.I.R. 455 and hereby determines that said Report has been completed in compliance with the California Environmental Quality Act and the state and local guidelines for implementation of that Act, and finds the project will have potential significant adverse impact on the environment, but that these potential adverse impacts are outweighed by the overall transportation and circulation benefits to the community and, further, that future development projects and precise arterial highway alignments will also be accompanied by required environmental impact analyses which are more specific in nature and which will tend to further mitigate any specific adverse impacts which might arise from these future street & highway projects.

BE IT FURTHER RESOLVED that the City Clerk is hereby directed to place a copy of the aforementioned Circulation Element on file in the Office of the City Clerk together with a date and time stamp indicating the time and date subsequent to the Council approval of this resolution that the City Clerk placed said element of record in the Office of the City Clerk.

ADOPTED this 9th day of May, 1978.

ROBERT D. HOYT
MAYOR OF THE CITY OF ORANGE

ATTEST:

CHARLOTTE M. JOHNSTON, CMC
CITY CLERK OF THE CITY OF ORANGE

I hereby certify that the foregoing resolution was duly and regularly adopted by the City Council of the City of Orange at a regular meeting thereof held on the 9th day of May, 1978, by the following vote:

AYES: COUNCILMEN:: BARRERA, SMITH, MAYOR HOYT, PEREZ, BEAM
NOES: COUNCILMEN: NONE
ABSENT: COUNCILMEN: NONE

STATE OF CALIFORNIA)
COUNTY OF ORANGE) ss.
CITY OF ORANGE)

I, CHARLOTTE M. JOHNSTON, CMC, City Clerk of the City of Orange, California, DO HEREBY CERTIFY that the foregoing Resolution No. 4780 is a true and correct copy of the original as appears on record in this office.

WITNESS my hand and seal this 26th day of July, 19 78.

(SEAL)

Charlotte M. Johnston, CMC
City Clerk of the City of Orange

CITY COUNCIL

Robert D. Hoyt, Mayor
Don E. Smith, Mayor Pro-tem
Fred Barrera
James Beam
Jess Perez

CITY MANAGER

Gifford W. Miller

PLANNING COMMISSION

Joanne Coontz, Chairman
Carmine Master, Vice Chairman
Don Ault
Dave Hart
Robert Mickelson

PLANNING & DEVELOPMENT SERVICES

Bert K. Yamasaki, Director

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EXHIBITS

INTRODUCTION

The Circulation Element of the General Plan describes the nature and extent of existing and proposed circulation systems in the Planning Area of Orange.

State Planning law requires the preparation of such an Element... "consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals and other local public utilities and facilities, all correlated with the Land Use Element of the Plan."

All local jurisdictions in Orange County have had a "Master Plan of Arterial Highways" for many years. In fact, many of these city plans were done in cooperation with the County of Orange as the concept of the county-wide arterial highway financing program was being developed in the late 1950's. The original "Master Plan of Streets and Highways" for the City of Orange was formally approved in 1960 and has been revised and updated on many occasions since then as the circumstances and conditions of our growing community required.

The circulation system is one of the most important of all urban systems in determining the form and quality of our urban environment. Locations of the routes, operational policies, street standards and the level of service all have an influence on the nature of development and physical organization of the City.

In one way or another, highways play a vital role in every aspect of modern life. In the United States, highway transportation provides one out of every seven jobs. In 1970 there was one registered motor vehicle for each 1.9 persons. Automobile ownership by households, although not a measure of potential motor vehicle use, is a good indication of the significance of automobiles in personal transportation. In 1971, in the United States, 50.2 percent of the households had one car, 25 percent had two, 4.8 percent had three or more, and 20 percent had no car.[1]

[1] Automobile Facts and Figures, Motor Vehicle Manufacturers Association 1972

Often in the past, cities have been successful in improving the capacity and safety of highway facilities, only to have these facilities obliterated by the insatiable desire of motorists for individual freedom. It is becoming increasingly more important for everyone associated with transportation and the making of transportation decisions, to view each project in the light of the overall goals of the community for an improved "quality of life." More than three quarters of the population of the Country is expected to be living in urban areas by 1980 and we are now beginning to really feel the pressures to provide fast and convenient vehicular circulation systems on the one hand while facing the demands of certain portions of our population to stop "destroying" our urban environment. It is no longer simply a matter of concerning ourselves solely with the movement of people and goods from one place to another. We must also keep in mind the relationship and effect that transportation facilities have on the social and physical environment.

COMMUNITY GOALS AND POLICIES

This Element of the General Plan for the City of Orange is an integral part of the comprehensive, ongoing planning effort in the community. Planning is, in its simplist form, a process of looking ahead and preparing for the future.

One of the most difficult but also most important tasks in the preparation of any Element of the General Plan is to articulate community goals and policies on any legitimate subject dealing with city life. Goals and policies are, quite often, already expressed in an obscure way in terms of existing and developing land use patterns, zoning patterns, level of environmental awareness and the level of the standard of service expected by the citizens in the community.

Goals reflect broad aims and basic values. The goals of the Circulation Element establish emphasis and tone for policy and specific program formulation. Future decisions and activities of Orange City government should be guided by the intent and purpose of the following goals:

- To develop a comprehensive circulation system that is financially, legally, and politically feasible, has public support, and has a commitment to its implementation by city officials and those providing transportation services.

- To provide a street and highway system that is adequate for a desired and reasonable level of private and public vehicle usage.

- To promote a transportation system that will offer a full range of services compatible with people's desires to travel.

- To encourage those public transportation services that should be available for those who do not choose to use the private automobile.

- To encourage all types of circulation and transportation technological improvements especially in the field of urban public transporation.

- To encourage those circulation and transportation improvements which support a balanced distribution of opportunities to travel while still preserving environmental quality.

- Support circulation and transportation improvements which help to stimulate revitalization and investment capital in the older porations of the community.

- To encourage safer, more fuel efficient and pollution free transportation vehicles.

- To support land use and circulation systems that are compatible with one another and are developed in a coordinated and mutually interdependent way.

- To continue to provide for the circulation needs of the community with an improved and expanded road system, but also take a leadership role in exploring the various public transportation alternatives and encourage alternative ways to move people.

- To conserve and preserve amenities of arterial streets with unique scenic characteristics.

- To develop a local scenic corridor plan which establishes policies and guidance for future development of specific arterial streets in the city.

The following policies provide direction for the achievement of Element goals. These policies should be carried out through implementation programs using both public and private resources and they should be kept in mind and used as an integral part of the decision making process. The City of Orange will:

- Work towards improvement of the existing highway system through traffic operational improvements.

- Evaluate new highway alignments in such a way as to insure compatibility with environmental concerns.

- Seek greater flexibility in the use of transportation funds.

- Encourage increased efficiency in forms of public transportation operations.

- Take necessary steps to minimize noise levels of all new transportation facilities and buffer those existing facilities as much as possible.

- Create and maintain a road circulation system that is integrated with planned land uses in order to give effective mobility to people and provide for efficient and economic movement of goods.

- Work towards the elimination of transit barriers to the handicapped and elderly.

- Promote the greater use of bicycles and encourage the use of bike racks and safe storage facilities at major parking areas.

- Encourage the use of public transportation.

- Encourage the use of car pools for work trips.

- Encourage continuing development and implementation of education and enforcement programs which promote a safer transportation and circulation system.

- ~~Continue to support and implement the City's street tree planting program.~~

- Wherever possible, link a scenic corridor system to parks, bicycle trails, scenic vistas, greenbelts and other recreation and open space areas.

- Use a full range of methods for managing land uses so that they are compatible with the goals policies and objectives of all other Elements of the City General Plan.

- Incorporate scenic amenities into arterial street designs which are appropriate to specific areas through which the street passes.

CIRCULATION IN ORANGE

There are four major types of transportation systems serving the population of the Southern California region and its commercial and industrial developments. They are highways and freeways, airports, railroads, and water oriented port facilities. The local transportation system in Orange is primarily concerned with the surface system of highways, freeways, and, to a limited extent, railroads. The ~~automobile~~ motor vehicle has become the predominant means of personal and commercial transportation in the city.

In most cities, including Orange, the street and highway network occupies 20 to 25 percent of the developed land area in the community so it is most important that we plan and maintain this vast public investment in an intelligent manner.* During the last several years a higher level of public awareness and concern about environmental issues has led us all to discover that our circulation system does have the potential for significantly influencing our lives and the environment. Circulation systems can be used to influence the nature, extent and pace of urban development and therefore must be well thought out and planned before development occurs.

In Orange, as previously mentioned, the circulation system is primarily one of roads, and, to a lesser extent, rails. The motor vehicle and its efficient movement through and within the city on our street system constitutes the main focus of this Element at this time.

Rail transportation serves the industrial northwest portion of the city with a rail system that has been in place for many years. The Atchison, Topeka and Santa Fe Railroad Company and the Southern Pacific Transportation Company operate rail lines in the westerly portion of the City of Orange and these are primarily to serve the industrial area. The portion of the A.T.&S.F. line which runs in a north-south direction south of Walnut Avenue is also a part of the regular Amtrack line providing passenger service between Los Angeles and San Diego on a regular basis.

*A well-planned circulation system provides a balanced system which assures the delivery of people, goods, and services efficiently. Economic stability in the community is greatly dependent upon a circulation system which serves the commercial centers which allows the delivery of services at a high level, and which moves people and goods to places of employment.

A recreational bicycle trail plan for the City of Orange was approved by action of the City Council on March 15, 1977 and is now operational.

A public transportation network of modern, convenient busses and a Dial-A-Ride system, both using the highway network and operated by the Orange County Transit District, also serve the City of Orange.

Arterial Highways

The system of arterial highways which serves the City of Orange and its surrounding area is a part of the larger regional network that has been designed and built primarily to facilitate the movement of people and goods throughout the entire county. The arterial highway system for Orange must take into consideration not only the existing circulation needs of its present population, but also those needs of the future population in the larger Planning Area. This consideration must recognize origin and destination characteristics that are much more than just of local consequence. Development of an arterial highway system of this nature is an ongoing process which requires periodic reevaluation and updating over time as new needs arise.

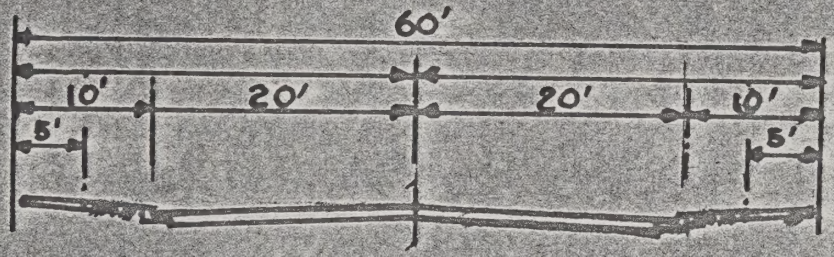
The arterial highway system for Orange was originally developed as a part of a hierarchical roadway system that includes:

- Local Streets
- Commuter Streets
- Secondary Arterial Highways
- Primary Arterial Highways
- Major Arterial Highways
- Freeways

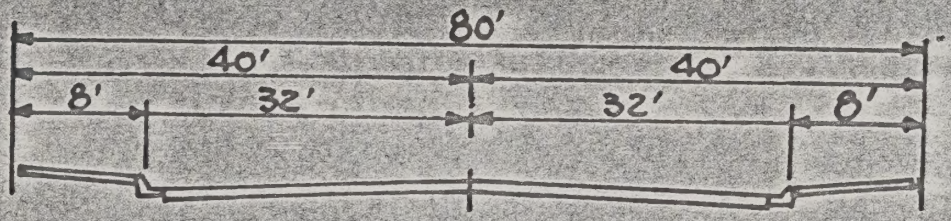
Local streets can be generally defined as low speed, low volume roads that are used primarily for vehicular access to residential properties. A local street generally allows on-street parking and has an average amount of parallel and perpendicular pedestrian traffic.

Commuter streets can be generally defined as moderate speed, moderate volume roads that are used primarily to collect and distribute trips within a hierarchy of roads and, secondarily, to carry short vehicular trips between adjacent neighborhoods.

Secondary, Primary and Major Arterial Highways can be generally defined as medium speed, medium to high volume highways for through traffic with intersections at grade, with partial control of vehicular access to abutting property and on which geometric design and traffic control measures are used to expedite the safe movement of through traffic.



COMMUTER



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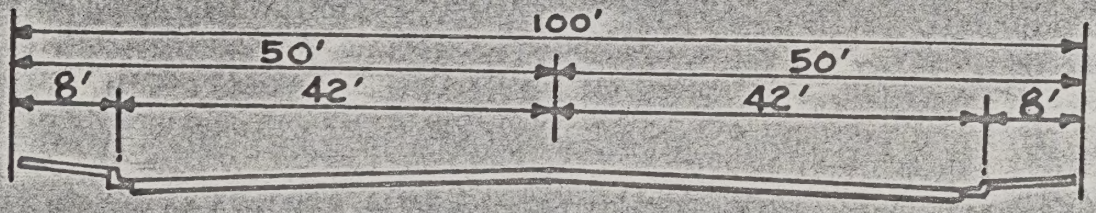

PRIMARY
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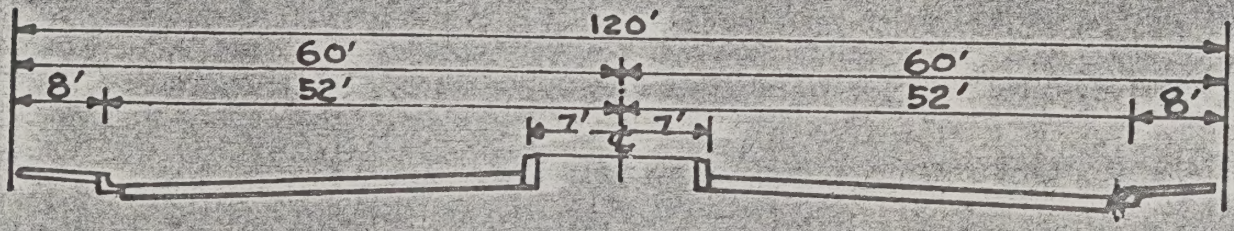


MAJOR
DESIGN SPEED 60 MPH

NOTE: For specific details see "Standard Plans",
Department of Public Works.
City of Orange, 1977.

EXHIBIT I

Freeways can be generally defined as high speed, high volume divided highways for through traffic with grade separated intersections and full vehicular access control.

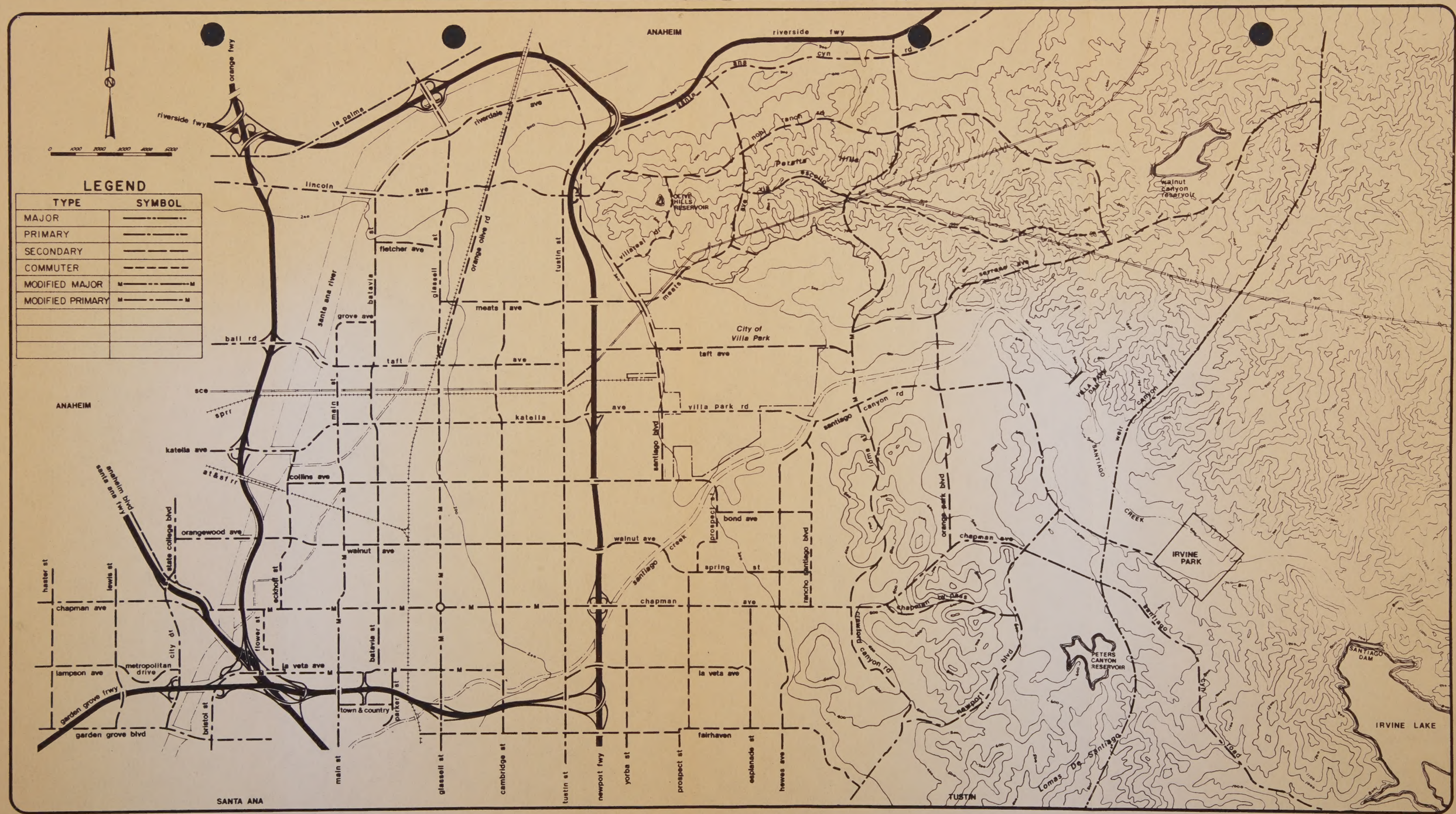
The necessary roadway widths that are required for each of the arterial highway classifications, if they are to achieve their desired function and provide the necessary level of service, are shown in a generalized way on Exhibit I. However, for specific details of construction, the reader should refer to the report "Standard Plans" of the City of Orange, Department of Public Works 1977.

The Arterial Streets component of the Circulation Element is shown as Exhibit II. The primary objective of this arterial street network is to facilitate orderly, progressive development of an integrated transportation system to serve both existing and future needs of the city. The system considers both present and projected land uses and the resultant travel requirements for the safe and efficient movement of people and goods at levels of service acceptable to and within the financial resources of the community.

The Arterial Street system is one that has evolved over a period of many years. As mentioned earlier it was first basically formulated in 1960. Over the ensuing years the network has been continually studied and updated to reflect new conditions and in anticipation of others. Past development of street systems and freeways has not been without some compromises on the environment. We have now reached the point, however, where the complexity of urban life demands a broader consideration of the impacts created by the arterial street system. Aesthetics, and the effects on the social and physical environment have risen in importance in judging the value and need of a new roadway. However, only certain impacts such as changes in air quality, visual appearance and noise levels can be effectively quantified and their impacts readily defined. Other things such as aesthetics, possible effects on established neighborhoods, and social implications are much more difficult to define and measure.

The Arterial Street network shown on Exhibit II represents, in most cases, street alignments that have already been established for a number of years and the function of moving vehicular traffic is an accomplished fact. Our review of development proposals near or adjacent to these facilities should include careful environmental analysis to mitigate the undesireable consequences of the close relationship to one another.

A small number of Arterial Streets, primarily in the eastern portion of the Planning Area, are not built and their precise centerline has not yet been established. These streets reflect a future need if we are to effectively handle the moderate growth that is to occur here. Careful consideration must be given when their precise centerline is established ,in order to insure that both the positive and the negative effects on the total living environment are fully evaluated before the final decision on route alignment is made.



city of orange general plan

circulation element

master plan of arterial streets component

EXHIBIT II

Public Transportation

A publicly operated transit network in the City of Orange is provided through the Orange County Transit District. A master plan for a total transit system was prepared by the District and its consultant. Sophisticated planning techniques were used together with suggestions from citizen committees to provide a system that most effectively reflects the needs and desires of the traveling public it serves.

The City is served at the present time by a bus service which links Orange residents with all other parts of the County. Bus routes include Route 30, Route 46, Route 54, Route 56, Route 69 and Route 71. Dial-A-Ride service also operates in the City of Orange and it is designed specifically for the local area. It provides convenient door-to-door service anywhere in the community.

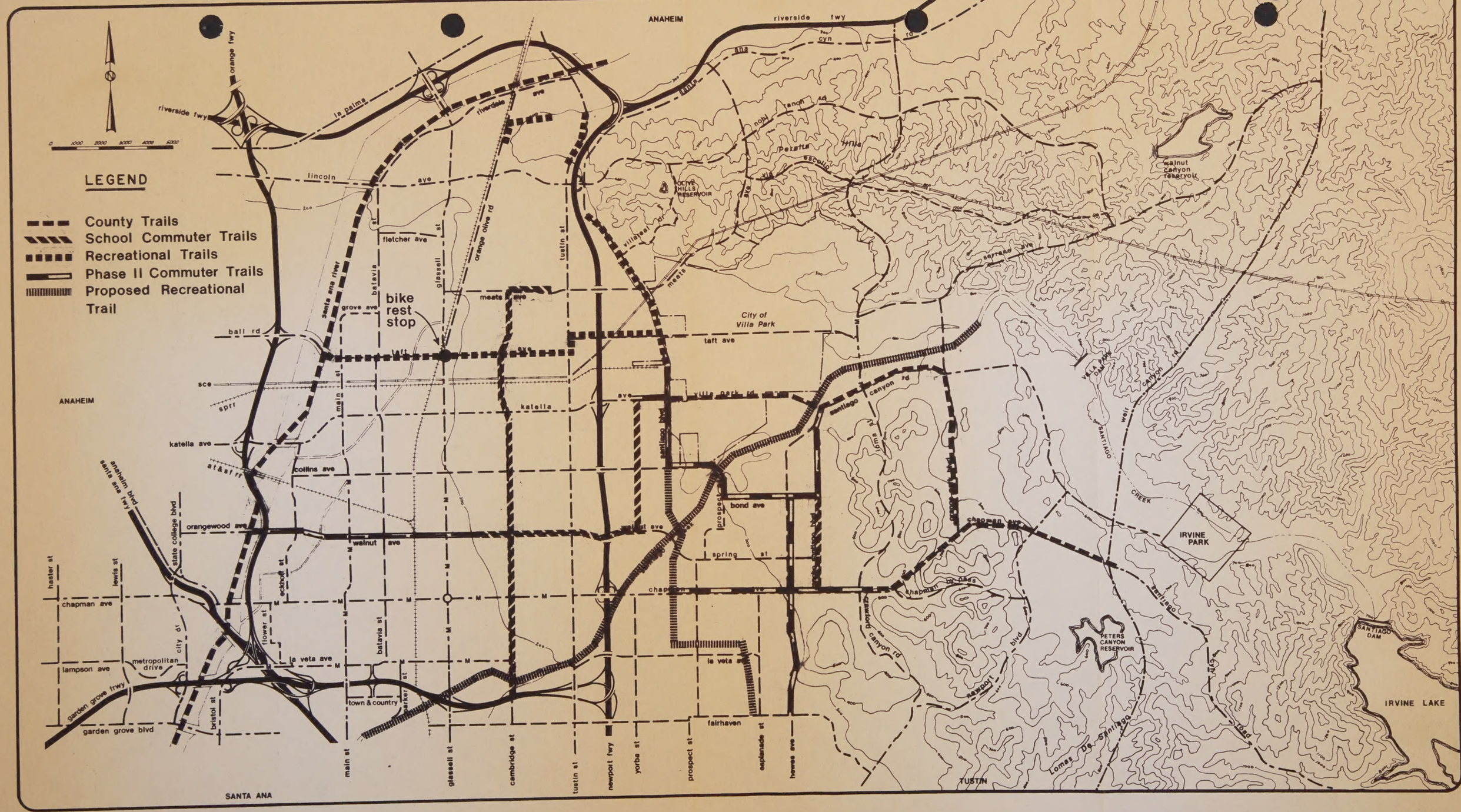
Bicycle Trails

The bicycle trail system for the City of Orange recognizes that bicycles are probably the most efficient means of transportation available. This system represents a viable commuting alternative to many people. It gives them mobility at good speed, provides health benefits through exercise, is relatively inexpensive and helps in the effort to reduce noise and air pollution. The bicycle trail system for the City of Orange is shown on Exhibit III.

Scenic Highways

Although Section 65302 of the Government Code states that all cities in California shall have a Scenic Highways Element, the section also states that this Element shall be prepared pursuant to the provisions of Article 2.5 of Chapter 2 of the Streets and Highways code. Article 2.5 is the section of law dealing with the "Master Plan for State Secnic Highways", and, among other things, it identifies all of those highways throughout the State which are eligible for official recognition as a State Scenic Highway. None of the highways identified in Article 2.5 pass through or touch the City of Orange so no potential exists at this time for Orange to qualify any highway for Official State Scenic Highway Designation.

However, this does not preclude the City from developing and adopting local scenic routes, particularly in the eastern portion of the Planning Area, since there are a number of proposed arterial streets here that have many potential unique scenic characteristics. Some of the streets with this potential are:



city of orange general plan

circulation element
master plan of bike trails

EXHIBIT III

Santiago Canyon Road
East Chapman Avenue
Chapman Avenue Bypass
Serrano Avenue
Via Escollo
Meats Avenue
Loma Street
Orange Park Boulevard
Newport Boulevard
Weir Canyon Road

Because of the complexity of right-of-way acquisition, design and maintenance, it is difficult and unrealistic to provide specific scenic plans for select arterials within the City at the general planning level of activity.

However, Scenic Corridor Plans which link an ongoing series of public and private improvements to scenic values of these arterial streets should be developed as part of the evolving process of implementation of the Circulation Element.

IMPLEMENTATION

These circulation recommendations are based upon the best technical information available. As conditions change with time, so do our plans for improving transportation in Orange. This Circulation Element has an inherent flexibility so that it can continuously reflect the social, economic and political realities of the community.

The primary purpose of the Arterial Streets component is to insure the necessary street right-of-way in the future if we are to have a truly effective, safe and efficient circulation system. As adjacent development occurs, provisions are made as a condition to approval of the development project that any necessary arterial street right-of-way be fully improved and dedicated for public use at that time. Also, as a part of the development process, a careful environmental review of all factors should be made so that both the public and the decision makers will have a complete body of knowledge for maintaining a workable transportation network for the City of Orange.
*

RELATIONSHIP TO OTHER ELEMENTS

The Circulation Element of the General Plan is very closely related to all of the other Plan Elements. The circulation system must be designed and developed in close cooperation with the ultimate land use pattern for any given area. This is why good comprehensive land use planning must be done sometime before the actual development pressures are upon us. If this is not done,then we are continually diverting our efforts toward remedial work and seeking solutions to problems that might have otherwise been avoided.

* See Reso 4780, Page 2 for addition of third paragraph.

Use of the arterial circulation system causes one of the major sources of noise in the community, and careful attention must be given to both the design of the roadways themselves and to the specific land uses that are adjacent to them. The goals and policies in the Noise Element of the General Plan should be closely followed in respect to our transportation corridors.

Factors of both Public Safety and Seismic Safety can affect the specific location and design of circulation facilities in terms of evacuation routes in times of disaster and also, in terms of structural safety. Also, accessibility by means of the arterial street system is a major factor in determining the availability and affordability of housing for all segments of our population.

ENVIRONMENTAL IMPACT

REPORT NO. 455

I. PROJECT SUMMARY

BACKGROUND/OVERVIEW

Mandate

As required by State law, local governments must prepare a comprehensive General Plan which includes a Circulation Element. The Plan and Plan Elements are to be updated and the planning and implementation activities specified in Elements must be coordinated so as to be 1) internally consistent 2) coordinated with other functional Elements of the comprehensive plan, and 3) consistent with functional and land use plans of other jurisdictions.

Work in Progress

The Circulation Element of the City of Orange is one Element of an evolving comprehensive General Plan which takes its basic direction from local city-wide goals and policy, county-wide goals, the County Master Plan of Arterial Highways, regional goals, State Office of Planning and Research guidelines and State Planning law.

The purpose of the Element is to guide the City in its efforts to achieve and maintain a safe, economical and functionally efficient arterial street network and also encourage more diverse ways in which its citizens might achieve mobility through a combination of public and private means. The Element is a document which will help us identify what we are doing, and propose to do, in the area of public and private transportation. The Element will be used to guide us in formulating specific action programs that deal with circulation, personal mobility, private and public transportation and scenic corridors and highways.

Many plans and programs relating to transportation are currently underway in the City both as privately and publicly sponsored efforts. These plans and programs are continually being revised, updated and added to as new opportunities and circumstances permit. The Circulation Element is a solid base upon which the City can build toward further achievement.

The City's role with regard to circulation includes these basic functions:

1 - Development of circulation goals and policy.
2 - Data collection, analysis and updating.
3 - Coordination of intra-department activities related to circulation and transportation.
4 - Coordination with adjacent cities, the county and SCAG in the same regard as above.
5 - Review of proposed state and federal legislation dealing with highways and transportation matters.

II. SUMMARY OF ENVIRONMENTAL SETTING

The environmental setting for this Element is summarized as follows and is also presented in the Land Use Element and other Elements of the Orange General Plan. This E.I.R. hereby incorporates by reference the environmental setting sections of each of the other Elements.

The City of Orange planning area is located in north central Orange County. It has an area of approximately 38 square miles or approximately 24,000 acres and a population of approximately 90,000 residents. The planning area contains a mixture of residential, commercial and industrial development along with undeveloped land in each category.

The City of Orange is fortunate in having a diverse combination of natural landscapes that vary from the relatively flat plains of the Santa Ana River and Santiago Creek to the rugged Santa Ana Mountains, Lomas de Santiago, Peralta Hills and El Modena Volcanics which bear mute testimony to past geologic processes. This diverse topography, enhanced with a "Mediterranean" climate, has contributed to the popularity and past growth of the City of Orange.

1. Rivers: The Santa Ana River forms the general westerly boundary of the planning area, extending north/northeast from the southern limit of the area with a more easterly bend at the northwestern boundary. Much of this riverbed is utilized for fresh water percolation basins with the appurtenant remainder committed to, or proposed for, recreation-open space uses.

   The Santiago Creek, a minor tributary of the Santa Ana River, bisects the City in an east/northeast direction with several sand and gravel extraction pits, a regional park, and unaltered creekbed characterizing its present state.

   Both of these major watercourses are included in the County of Orange Greenbelt Plan and dealt with in more detail in the City of Orange Open Space and Conservation Elements of the General Plan and the Santa Ana River-Santiago Creek Greenbelt Plan prepared for Orange County by the firm of Eckbo, Dean, Austin and Williams.

2. Plains: The Santa Ana River and Santiago Creek Alluvial Plains comprise most of the low land and level area of the western two-thirds of the planning area and contain the major portion of the incorporated territory. These plains were formed over many millennia by the deposition of rocks, silt and debris by the Santa Ana River and Santiago Creek. All natural vegetation of the plains, which was once grassland and coastal sage-scrub, has been cleared by past agricultural activities and urbanization.

A smaller alluvial plain, is located east of the El Modena Vocanics. This plain is comprised of alluvial deposits of Handy Creek. This plain is partially developed to the neo-rural urbanization form and is locally known as "Orange Park Acres".

3. Hills: With most of the level to rolling land urbanized or committed to urbanization, future growth will most likely occur in the hill and foothill areas, which retains the natural grassland and coastal sage-scrub vegetation communities of the planning area. The western end of the Peralta Hills, along the northern boundary of the planning area are partially urbanized with the Nohl Ranch and Villa Park terraced residential communities. The eastern portion of these hills, extending to Weir Canyon then merging with the Santa Ana Mountain foothills and extending southward, are undeveloped. Sporadic residential development is presently occurring along the base, and into the El Modena Volcanics. Panorama Heights and Cowan Heights, along the southeastern planning area boundary, are partially developed with residential estates.

III. POTENTIAL SIGNIFICANT IMPACTS AND MITIGATION MEASURES

For purposes of environmental impact evaluation, the recommendations in this Circulation Element can be divided generally into two categories:

1. Recommendations designed to affect the planning and decision-making processes, and;

2. Recommendations designed to directly affect the city transportation system.

Recommendations related to the planning and decision-making processes are concerned mainly with technological change, institutional arrangements and the allocation of resources. Those related to the transportation system are concerned mainly with land use, air quality, noise, energy and accessibility and mobility. The environmental impacts are confined primarily to the second group.

Natural Environment

Impacts:

To expand the circulation system to meet the existing and projected needs of the residents of Orange, as well as the broader based area needs of a growing region will require, among other things, the preparation of precise highway alignment studies and ultimate development of new arterial highways. Additional widening of existing highways will also be required. There is a potential for significant impacts resulting from these activities in terms of:

1. The opening up of undeveloped areas and potential changes in topography particularly in the eastern portion of the Planning Area

2. Increasing the accessibility into open space areas

3. Potential changes in the numbers and diversity of species of Flora and Fauna

The total impact of the resultant implementation of the Arterial Streets Component of this Element cannot be measured at this time. The magnitude of these impacts is dependent on specific locations of new highway alignments and the physical design of these facilities.

There is a steadily growing need for new transportation facilities in growing urban areas. Predictions for the year 2000 are that about 85% of the population of the United States will be living in urban areas and recent projections of growth for California by the State Department of Finance strongly supports these predictions. The continuing trend toward low density residential development in the suburbs along with decentralization of industrial, commercial and recreational activity, and, increased automobile ownership, has resulted in an increase in travel by private automobile.

Mitigation Measures:

This Circulation Element and each of the other Elements of the General Plan contain policies and policy action measures which, in themselves, act as measures to mitigate potential impacts on the natural environment.

Individual projects generated in response to this Element and the Land Use Element will address specific impacts for their specific location in much more detail as a part of the overall development process prior to any final action being taken on them by the City Council and the Planning Commission.

Air Quality

Impacts:

There is a potential for air quality reduction in the City and in the South Coast Air Basin in direct proportion to the population and economic growth of the Southern California Region. Obviously, new streets and highways will increase vehicular accessibility into areas where motor vehicles did not pass before and this will bring about an increase in auto pollutant emissions into these localized areas.

Mitigation Measures:

The Circulation Element in itself will not directly cause an increase in air pollution in the atmosphere in the South Coast Air Basin. However, it will, as implementation occurs for the Arterial Streets Component, somewhat alter the distribution of localized pollution. This impact will be partially mitigated by the provisions contained in the State Air Quality Plan, including exhaust emission controls.

The philosophy of air pollution control is a very complex matter and requires a careful definition of responsibility on the part of all agencies. Impact of the Orange Planning Area on the air quality of the air basin, although certainly measurable, is nonetheless relatively small. Because of the dispersal effects of air pollution, the application of non-uniform regulations throughout the air basin will tend to equalize rather than remain differentiated within the basin.

This means that the amount of resources that it would take to implement stricter air quality criteria in only one segment of the air basin, the City of Orange, would be proportionally much greater than the effected results on overall basin air quality. Air quality criteria must be applied uniformly over the entire air basin. The costs of application of stricter air quality regulations in only one area of the region cannot be justified.

Noise

Impacts:

Noise has often been described as unwanted sound, sound without value, or vibrational energy out of control. Noise generally has three sources: 1) transportation noise, 2) occupational or industrial noise, and 3) community background noise.

As indicated in the Noise Element of the General Plan, the greatest contributor to the community noise level in Orange is motor vehicle and road noise. Because of the comprehensive nature of our arterial highway system in the developed area of the City, as well as in those areas planned for future development, the corresponding resultant noise levels have some effect on the entire city.

Streets, alleys and railroad rights-of-way constitute the second largest land use in the City. They utilize approximately 20% of the total amount of all acreage in Orange. The gridiron pattern has been employed as a street system for the most part in that portion west of the Newport Freeway. A fragmented grid exists east of this freeway facility.

Mitigation Measures:

There are two alternative means of handling noise intrustions - eliminate the problem by shielding, escaping or removing the noise source; or, adapt to the new environment. Adaptions to noise intrusions may adversely affect group inter-relationships. The intrustion of noise can affect every facet of human existence.

All new development to be used for human habitation adjacent to or near the arterial streets, the freeway system and railroad lines should be sound attenuated to provide for acoustical privacy consistent with the Noise Insulation Standards, California Administrative Code, Title 25, Chapter 1, Subchapter 1, Article 4 and all other existing and future requirements. Residential spaces to be located in exterior noise exposure areas of 65 dB or greater may be undesirable and detailed acoustical analysis of such spaces should be undertaken to develop adequate exterior noise mitigation plans in conjunction with any residential development in such areas. This analysis must indicate that the interior living space of the units will not exceed a CNEL of 45 dB. Walls, windows, vents, roofing systems, etc., which reduce the exterior noise to the prescribed interior standard (45 dB) may be required to comply with the provisions of the Noise Insulation Standards (CAL ADM CODE: Title 25 Section 1094). These standards are consistent with the provisions of Ordinance No. 17-74, the Noise Ordinance of the City of Orange. As a general rule the intrusive noise levels that should be maintained in the various land use categories in the City of Orange are shown on the following chart.

INTRUSIVE NOISE LEVELS*

Zone	Time	Quiet	Slightly Noisy
Residential	10 pm - 7 am	45 dB (A)	50 dB (A)
	7 pm -10 pm	50	55
	7 am - 7 pm	55	60
Multi-Family	10 pm - 7 am	50 dB (A)	55 dB (A)
	7 am -10 pm	55	60
Commercial	10 pm - 7 am	55 dB (A)	60 dB (A)
	7 am -10 pm	60	65
Industrial	Anytime	70 dB (A)	70 dB (A)

Source: League of California Cities, Quiet City Report.

* The sound level limits of intrusive noise across commercial and residential boundaries.

The following policies taken from the Noise Element of the General Plan will, through their implementation, have a mitigating effect on the Circulation Element impacts:

The City will enforce acceptable noise standards consistent with health and quality-of-life goals and employ effective techniques of noise abatement through such means as building codes, subdivision and zoning ordinances.

The City will develop further strategies for noise reduction where noise impacted areas exist.

The use of quieter automobiles, machinery and equipment will be encouraged and the City will establish noise criteria in their specifications for purchase of City vehicles and their components.

Subdivision applications shall provide assessments of noise levels anticipated within the proposed subdivision pursuant to the California Environmental Quality Act.

The City will promote a more efficient, comfortable and quieter bus service.

The City will encourage the development of alternative transportation modes which minimize noise within residential areas.

The City will employ noise mitigation measures in the design of all future streets and highways and buffer the arterials from adjoining areas wherever possible.

Where appropriate, sound walls and landscaping along existing and future highways and railroad rights-of-way to reduce noise will be required.

Energy

Impacts:

Although new road construction and reconstruction activities generated as a result of this Element have the potential to increase energy consumption over the short term through actual construction activities, the net impact in the long term should be beneficial in terms of reducing the demands of increased energy consumption.

Implementation of the Circulation Element can reduce the length of commuter vehicular trips and reduce delay and congestion on our existing surface streets by providing shorter alternate routes.

Emphasis on alternative modes of transportation and shared vehicular travel will also tend to help reduce energy consumption. Also, policies supporting the development of new and improved energy efficient transportation units serve to reduce the tendency towards increased energy demands.

Mitigation Measures:

No specific mitigation measures are proposed since the Circulation Element in itself will not cause significant increases in energy consumption. However, certain conservation policy measures should be encouraged, such as: increased use of more energy efficient public transportation, increasing automobile load factors through voluntary car-pooling, increasing automobile fuel efficiency and economy.

Accessibility and Mobility

Impacts:

The Arterial Streets Component of the Circulation Element will, as implementation occurs over time, increase accessibility into some areas of the Planning Area, which are not readily accessible at the present time. This increased accessibility will, however, also increase the opportunities for greater mobility for the citizens of Orange by dispersal of some of the vehicle trips away from areas of present congestion. Obviously, the response of building new arterial streets to better facilitate areawide transportation needs has the corresponding result of allowing other types of land uses to more readily be adapted to the land made more accessible by these roadways.

Mitigation Measures:

Implementation of the Arterial Streets Component of the Circulation Element, particularly as it relates to new roadways in undeveloped areas, should occur only at such times as the City Council and Planning Commission are assured that circulation and transportation demands are such as to require these new arterial links in the system. At such times a very careful and detailed precise highway alignment process should be carried out and appropriate public hearings held. Preliminary design alternatives should be thoroughly evaluated in terms of environmental considerations and questions of possible growth inducing impacts should be fully explored. Roadways with a primary purpose of opening up new land use development potential should be discouraged. Land use and specific Arterial Street planning and development should be done in concert with one another at time frames acceptable to the local decision-making body.

IV. ALTERNATIVES TO THE PROPOSED PROJECT

The concept of alternatives at this level of planning for this Element of the General Plan essentially means "No Project" and this translates to no new growth of any consequence. Another alternative would be to eliminate any new development on vacant land in the easterly portion of the Planning Area and direct any additional development into the existing urbanized areas of the city. Although such a strategy might accelerate the process of reinvestment,the results may be population densities which are beyond our capacity to service. This would undoubtedly be socially unacceptable.

Totally restricted outward growth might also substantially increase housing costs through increased land and construction costs.

V. POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS THAT CANNOT BE AVOIDED

This provision of the California Environmental Quality Act relates more to a specific development proposal than to a General Plan or plan Element, such as the Circulation Element. The Goals and the Policy alternatives in the Circulation Element,and the many options for specific actions permit quite a large degree of flexibility in environmental analysis at this level of planning.

The obvious significant environmental impact that cannot be avoided if the Circulation Element is to be implemented is the impact of introducing new roadways into certain areas which contain no roadways at the present time. The potentially significant environmental impacts of these new roadways should be fully evaluated during the public hearings on the precise highway alignments so that appropriate mitigation measures may be considered and implemented. Not so obvious is the fact that many beneficial environmental impacts result from actions that seem undesirable to others.

Reduced congestion, less fuel consumption resulting from a better circulation system, energy savings, and reduction in air pollution are all significant environmental impacts that can also be attributed to the Circulation Element.

VI. THE RELATIONSHIP BETWEEN SHORT TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG TERM PRODUCTIVITY

With the exception of the potential social impact of introducing new arterial streets into undeveloped areas which will be unacceptable to some people, there are no long-term adverse impacts on the environment attributable to approval and implementation of this Element.

Because of policies contained in the General Plan and this Element, the net overall effect should be an enhancement of the existing environment and the improvement of the existing urban form. The duration of any adverse social impacts is indeterminable. However, the net long-term effect should be a beneficial one by producing a more efficient, diverse and balanced transportation and circulation system.

VII. THE GROWTH INDUCING IMPACT OF THE PROPOSED ACTION

Although full implementation of the Element may tend to facilitate localized growth, it is not expected to adversely impact growth on a regional level. Approval of the Circulation Element itself will not induce growth. Land Use Planning and Arterial Street Planning should compliment one another rather than compete and each is necessary if we are to intelligently prepare for the future.

VIII IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED PROJECT SHOULD IT BE IMPLEMENTED

Since the Circulation Element is only a portion of our overall effort in the development and maintenance of a comprehensive General Plan for the City of Orange and follows the forecasts and development policy established in other Elements as well, the basic environmental changes are:

Ultimate utilization of land for approximately 16 miles of new street right-of-way

Increased consumption of construction energy for development of new Arterial Streets and reconstruction of others

Alteration of existing natural topography in areas of new right-of-way development.

Orange

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